

# **‘Little Boy Blue’... Fixing-up an Eddystone S.870, by Gerry O’Hara, G8GUH/VE7GUH**

## **Background**



I bought a very nice little S.870A from Chris Harmer a couple of years ago (photo, left) – a lovely, all-original set finished in maroon with cream perforated panels on the ends. It sits on my home desk along with my trusty S.750 and 1830/1 and is used

at least a couple of times a week. The S.870A sounds very good (much better than the 1830/1 with its tiny internal speaker) and performs remarkably well for such a simple circuit. The only issue I have with it is that it takes ages to warm-up from switch-on due to the thermistors in the AC/DC power supply heating up and (eventually) allowing the valve heaters to do their job – a small price to pay though...<sup>1</sup>

So, having this S.870A, I was not really looking for another set of the same (or similar) ilk, but one day recently I saw a very sad-looking S.870 on Ebay and, once I realized it was in Canada (albeit the other side of Canada), I thought I had to go to the rescue of the poor little thing. Bid I did, and lo and behold I won: within a week the set had arrived and it looked worse than the Ebay photos had indicated... oh well, too late to turn back now!

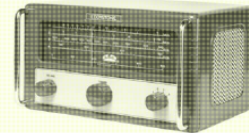


Left: what secrets await inside this innocent-looking cabinet...?

### **THE SEARCH FOR A NEW MARKET**

"In 1955 Arthur Edwards, Eddystone's Sales Director, summoned a meeting with Harold Cox, Technical Director, and myself, Chief Engineer. He was troubled by the Sales Figures, which showed a distinct dip. He suggested that we needed to create a new market with a universal 'midget receiver'.

"The idea of a mini-set based on the 820's front panel was born. At the time research had started on what was to become the 880 super-model (of which more later) and Harold was loath to divert effort from the project.



"The result was that the 870 was designed over the course of about twenty weekends.

"When there was a job to be done at Eddystone the clock went out of the window. But the final problem was deciding the colour to paint it!

### **PUT IT TO THE VOTE . . .**

"Several of the development models were sprayed in garish colours: pea green, yellow, red, blue . . . and maroon.

"This was Harold Cox's favourite and declared that an election would take place the next day among the assembly workers to choose the colour of the production version.

"He then passed between the girls on the assembly line murmuring the virtues of discrete colours. And guess what? The maroon won by a clear margin! Harold was tickled pink and production got under way.

"Discussions took place with Cunard and Royal Mail Lines to equip all new liners with an 870 in every cabin, not just the first-class. An international advertising campaign was mounted to sell the set to the general public, based on the quality of the product. Our agent in Coventry sold one to a customer who complained long and loud that the 870 was the worst set he'd ever had! We offered to change it for a new one but that only incensed the customer even more.

"He went into the store, seized an 870, threw it to the ground, jumped on it and walked off . . . I'm not sure to this day who paid for it!

"Otherwise the set went down very well, but by the early sixties customers were asking for the 13 metre DX broadcast band to be included. We couldn't squeeze the tuning up to that so we added an extra band and called it the 870A. Harold relented and agreed to spray it British Racing Green!

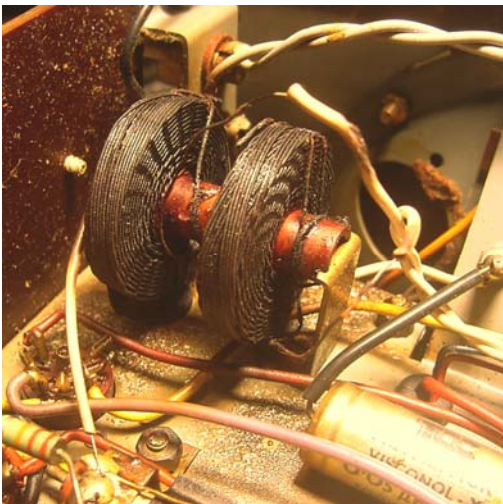
<sup>1</sup> For historical and technical background on the S.870/S.870A sets, see *An Eddystone 'Cabin Set' – or the 'Neat Case' of the S.870/S.870A Series*, *Eddystone AC/DC Set Lore* and *The Lonely Receiver (Christmas Tale)*, all can be downloaded from the EUG website.



### Preliminary Inspection and Clean-up

On opening up the package, I was greeted by a very dull (almost matt-finish) case, with the worn-out fingerplate sporting an ugly meter (actually a 0 – 10A meter! – a prior owner must have been anticipating strong AGC action...) and a headphones socket, fitted in a very crude fashion (photo, above) – the holes in the front panel and fingerplate were complete with huge burrs and bits of metal clinging on to the edges. The good news was that the meter was not wired into the circuitry at all, but the headphones socket had been wired into the secondary of the speaker transformer.

Once the cabinet was removed from the set, the full horror of the power supply section was revealed – the twin filter chokes had become so hot at some point that the (enamel)



paint on the underside of the chassis above the chokes had burned-off/wrinkled and gone brown (photo, left), much of the nearby wiring insulation was charred, one thermistor was absent and the other just had its ends present, still clinging to its connection wires. An ugly 220ohm 'sand' resistor had been installed – probably as a dropper for the heater string.

### Ponderings...

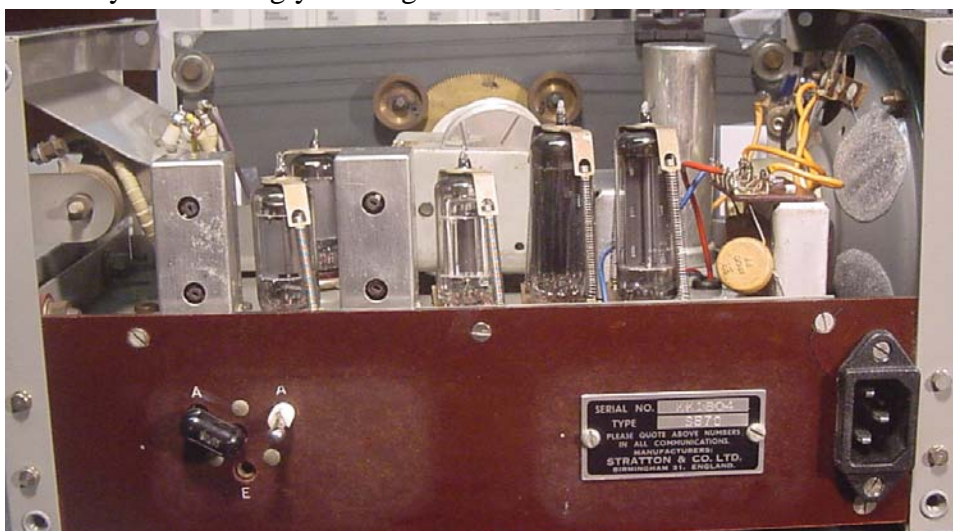
When I restore a set, I like to stick with the original circuit and look as far as possible. In this case though, I decided that as the set was



never really going to be the same again - gaping holes in the front panel casting – albeit this could be covered-up externally with a new fingerplate (hopefully), and likely not being able to source a CZ2 and CZ3 thermistor pair for the power supply, I thought that in this case some ‘artistic leeway’ would be acceptable to have a working set and one that looks good. I recalled comments made by Bill Cooke in the ‘Cooke Report’ (sidebar on previous page) – “...several of the development models were sprayed in garish colours: pea green, yellow, red, blue.... and maroon.” [the latter was apparently Harold Cox’s favourite – and which won the ‘election’ for which would go into production - quite rightly too as it looks very nice], with British Racing Green being introduced later with the S.870A. Obviously a version of the S870 in grey was also produced (this seems fairly common on sets that come up for sale). So, what colour? – re-finish in its original grey (would match my MkII models – S830/4 and 940) or maybe something different? – one of the development model colours, British Racing Green or how about white, cream, or maybe even black wrinkle? The knobs on the set were grey and what, if anything would Ian Nutt have in stock in the way of fingerplates? Choices, choices... (see page 12).

### Repairs and a Little Brainwave

First things first though – I needed to get this poor little puppy working! - but where to start? Well, the power supply seemed the obvious place, and no better spot than the power connector. This set was fitted with a two pin, non-reversible connector with a ground connection located at the side. This would have been ok, but the seller had provided a look-alike line socket that did not mate with the chassis plug (I think it was likely off a percolator or similar small kitchen appliance). I decided to fit an IEC connector in its place as described in several of my previous articles. Unfortunately on the S.870 this required filing the hole in the (Paxolin) rear panel very slightly on one side – still, once fitted it looked ok (photo, below) and I doubt anyone would ever want to re-fit the original connector. I had to be careful doing this as there was a small split in the upper surface of the Paxolin panel at this location and I did not want to make it worse. The ground pin of the chassis plug was connected to the closest chassis side-cheek, which is insulated from the main chassis, but connects to the cabinet thus grounding the cabinet for safety. Interestingly the original connection here did not have continuity as the paint



under the screw had not been removed. I also made sure that the supply polarity was correct, with neutral connecting to the chassis.

With the new power connector in place, the next thing to check was the valve filaments for continuity (I suspected whatever had caused the overheating had likely blown at least one filament) – amazingly they were all good – phew! Just as well, as I did not have a 19AQ5 (output valve) in stock. Then another decision – what to do about the missing/broken thermistors? I did a little research on thermistors and ‘Brimistors’<sup>2</sup> – interesting stuff (see Bibliography) but they are not that common. Then I read Tor Marthinsen’s article in Lighthouse Issue 90 (May, 2005) and decided that I would try the set without the thermistors fitted and think of an alternative for the dial illumination rather than retain the two 5v filament dial lights. Tor made the point that the thermistors were really there to protect the delicate dial light bulb filaments rather than the valve heater filaments, which are likely to be designed for a switch-on current surge when the filaments are cold – look at the number of AC/DC sets that use series filament string without thermistors fitted. Tor suggested that for a 110v supply a 120ohm dropper resistor could be fitted. The supply here is closer to 120v than 110v, so I thought a 150ohm (5W) would do the job. First though, I needed to do some cleaning-up of the power supply section, starting with the broken, corroded and burned-out ceramic stand-off connectors that would normally support the thermistors and R21 (155k, 3W), as well as acting as terminations for the ceramic bead-insulated wires going to the taps on the large 40W dropper resistor used when the set is on a 220v or 240v power supply.

At this point I decided to remove the front panel assembly to allow easier access to the front of the chassis. Once this was removed - a simple job - slacken the two set screws in the tuning gang flexible coupler, remove the nut and insulating washers from the volume control shaft and then removing the four bolts holding the chrome handles and the tuning mechanism sub-chassis in

### Eddystone AC/DC Power Supplies

I would refer you to my 2006 ‘Technical Short’ on Eddystone AC/DC sets (‘AC/DC Set Lore’) for a fairly full description on this topic, however, I thought it would be useful to highlight a few points (mainly safety-related) alongside the main text for ease of reference:

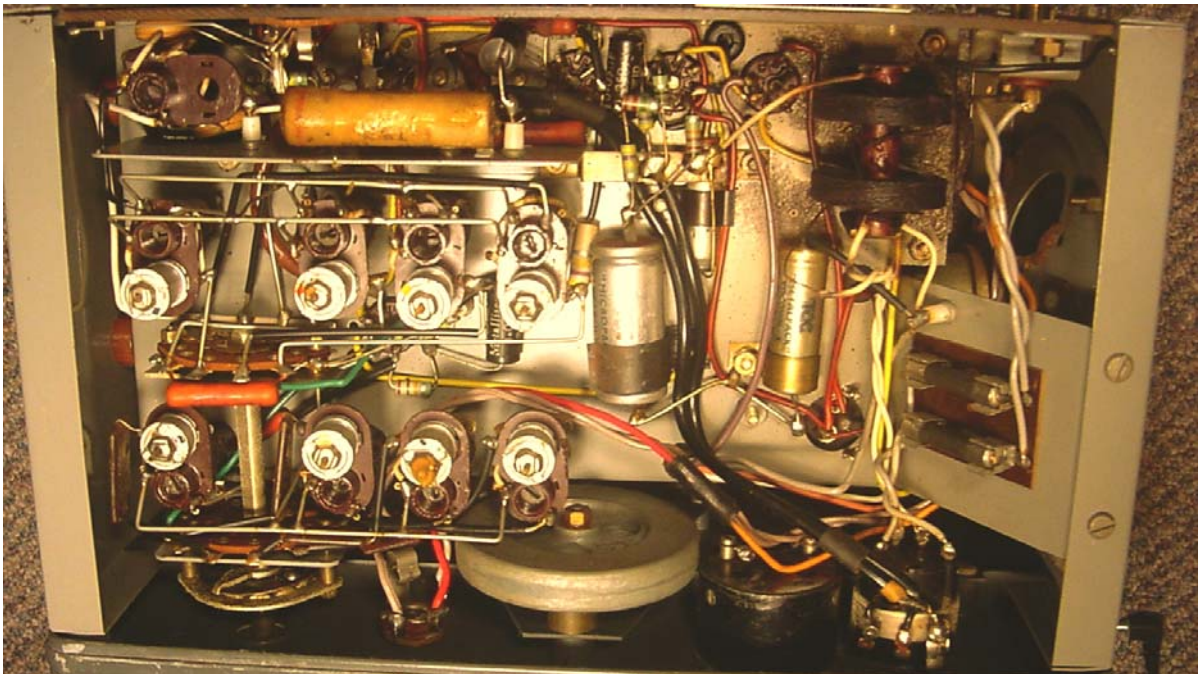
- The primary reason why Eddystone adopted this form of power supply in their sets was to allow use on board ships – the S.870 was a ‘cabin set’;
- The chassis in an AC/DC set may be ‘live’, depending on the polarity of the supply connected to the radio (many 2 pin plugs used to connect these sets in the past were non-polarized and could be connected either way;
- A ‘live’ chassis poses a significant danger to the user unless precautions to prevent contact are implemented;
- Eddystone included a number of insulating washers, mounting strips and Paxolin rear panels in their AC/DC sets to enhance operator safety;
- A ‘live’ chassis still poses a danger to anyone servicing the set and precautions must be implemented prior to working on one of these sets;
- Good practice is to feed the set power through an isolation transformer, stand on an insulating mat and avoid contacting the chassis. In countries with a grounded neutral supply (eg. Canada), fit a polarized power plug to the set and make sure that neutral is connected to chassis. If the set has a metal cabinet (as per Eddystone), install a three-way plug and ground the external cabinet;
- Always fit the correct capacity and type of fuses;
- Make sure that the valves with the correctly-specified heater voltage and current draw are installed.

<sup>2</sup> Trade name for series of thermistors manufactured by STC (Types CZ1 through CZ12, each having different temperature v resistance characteristics. Many were used in TV valve filament strings)



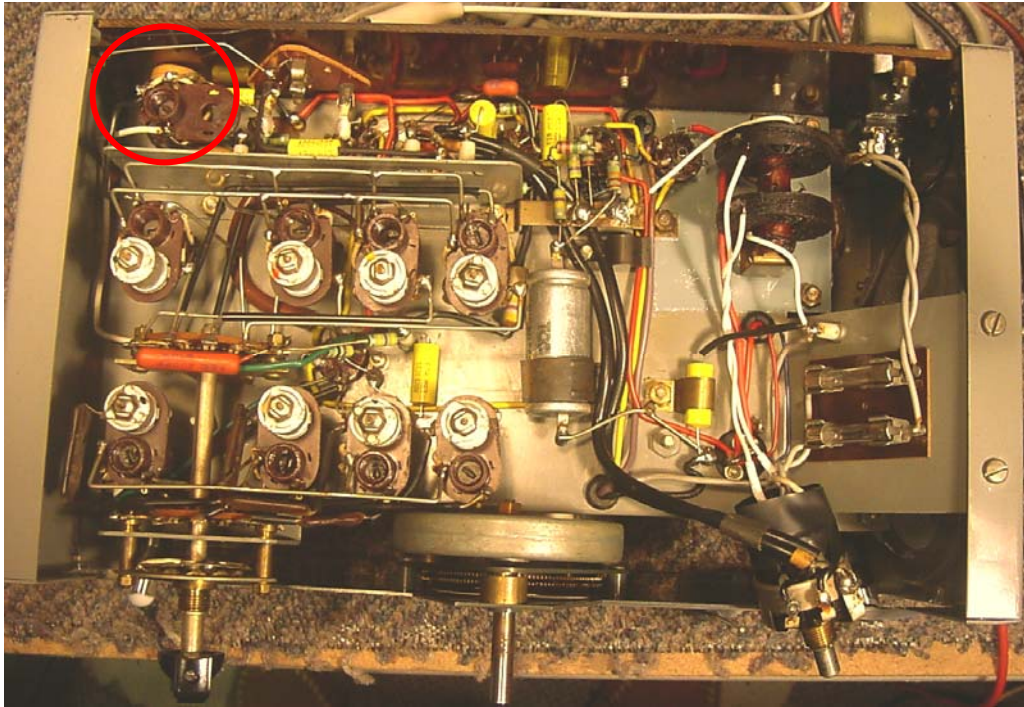
place. I also removed and discarded the ugly panel meter and took out the headphone socket and its wiring. I also removed the speaker too allow easier access for cleaning (but left it connected).

Once the above dismantling was completed, the two central ceramic stand-offs were removed (photo, below), along with the sad remnants of a thermistor, the 'sand' resistor and R21. The area was cleaned-up and the dial lights taken out of circuit, re-wiring such that the power was applied to the valve filaments through a 150ohm (5W) resistor connected across the remaining ceramic stand-offs. This done, the remaining wiring in the power supply was given a check-over (found to be ok, albeit not very aesthetically appealing due to its insulation being a bit singed – I decided to replace this, but not until I had tested the set).



Before I re-installed the valves, I decided to replace all the Hunts paper capacitors and check the electrolytics – photo, above. The large 'waxy' is the all-important capacitor between chassis and the ground/cabinet (C4). This and all the small Hunts capacitors were leaky (several megohms) and showed a slightly low capacitance on test. I replaced

C4 with a regular 0.01 630vw polyester film, but will replace it with a 0.01uF Type Y2 safety capacitor (on order at time of preparing this article). The twin 32uF 350vw filter capacitor and the 4uF decoupler in the anode circuit of V3 tested ok – capacitance within tolerance, fairly low leakage and low ESR. As they tested ok, I decided to retain them for aesthetics. However, the small (30uF, 15vw) tubular electrolytic capacitor on the cathode of the output valve had high leakage and virtually no capacitance and was therefore



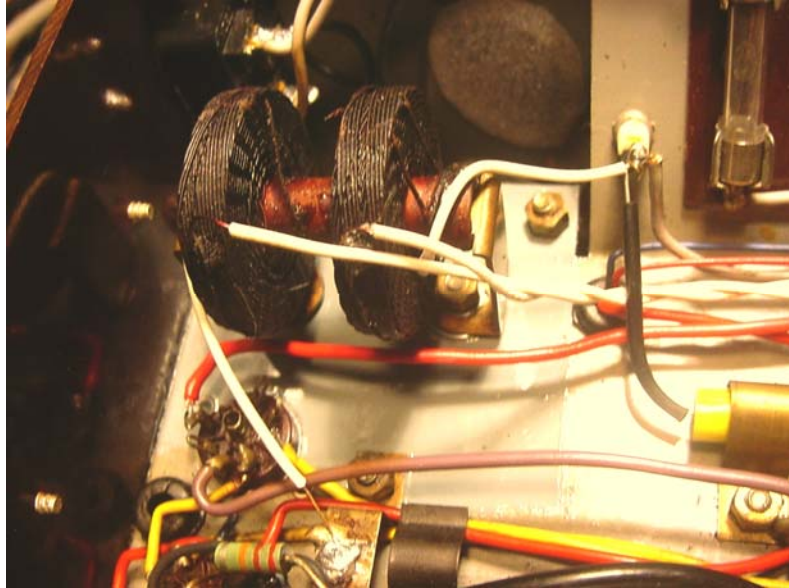
replaced. The only awkward capacitors to work on are the two (C12 and C16) located beneath the IF trap (circled red at the upper left on photo of the re-capped/re-wired chassis above). I unsoldered the upper connections to the IF trap and moved it out of the way to gain good access. All resistors were checked and found to be within tolerance (10%) and so were left in place. I also checked all the valve filaments for continuity – surprisingly they were all ok and so were re-installed.

The big moment had finally arrived for this diminutive receiver. With an AC voltmeter connected across the heater string, I coupled it up to my Variac and slowly wound up the voltage – hey presto! – at full voltage I measured 93.5v across the heater string – a tad on the high side, but well-within the accepted tolerance of such things (I checked in my copy of Langford Smith and it notes 5% of the nominal filament voltage on a valve is fine and even 10% usually acceptable). Best of all, the set burst into life! It did not sound that good though – quite distorted - but was quite lively on the Broadcast Band. I left it running for an hour or so and things seemed to be stable. Checking around the chassis, the cause of the distorted audio was not evident – voltages were all ok. I decided to leave sorting that out for later.

I then decided to clean-up the chassis, re-paint the section beneath the filter chokes and re-insulate/re-wire where the insulation had been singed. With the filter choke removed

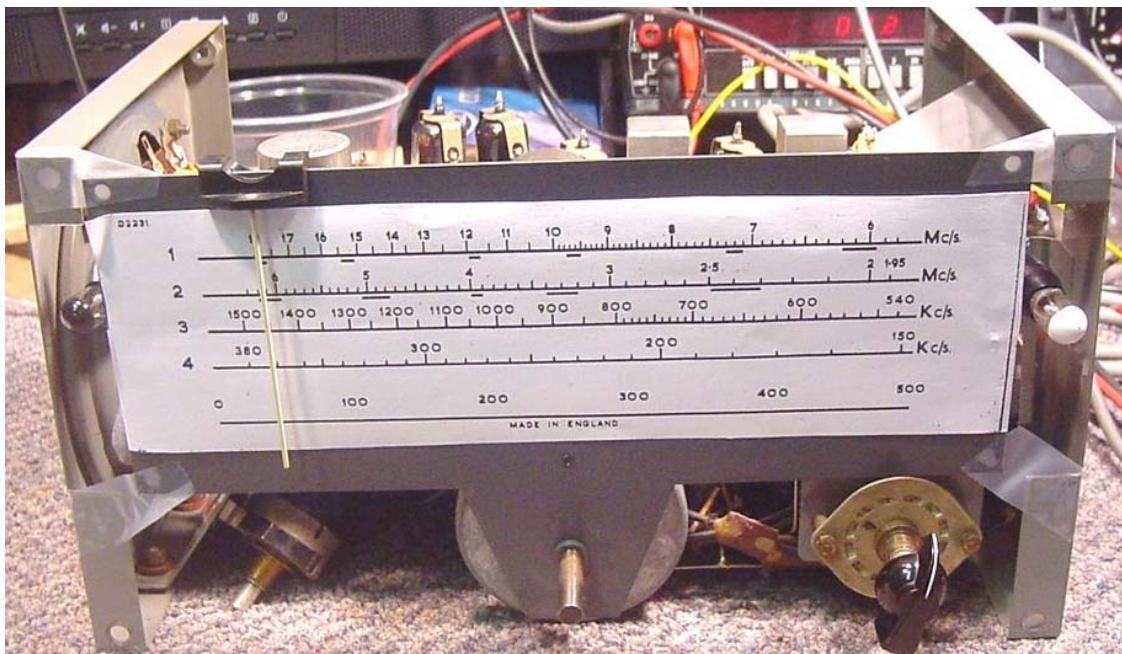


(two screws), the old paint was removed with a small wire brush and I used some grey Humbrol enamel over the affected area – I was not too bothered about having a good colour match as this area is beneath the chassis and will never be seen (also, the adjacent original chassis paint was fairly discoloured anyway). This done, I removed the old insulation from the filter choke wires running to the chassis, insulator and power switch and replaced with white heat-shrink in keeping with the original. I also replaced some of the original wiring to the rectifier and output valves that were also singed (photo, right).



But what about the dial lights? I had it in the back of my mind that I could use a couple of the bright LEDs – these draw up to 20mA or so at full brightness, but still have acceptable light outputs at 5mA and work fine with AC or DC supply.

However, after some experimenting with obtaining their voltage from various sources in the receiver, I could not find anything suitable without installing high-wattage dropper! Then I had a look in my bulb junk box and had a brainwave: I found two 60v 50mA screw-based dial bulbs (I have no idea where they came from), wired the bulbholders in series and connected them across the 120v supply – worked ok, but rather bright (compared with those in my S.870A). Then the brainwave: the large (40W) dropper in

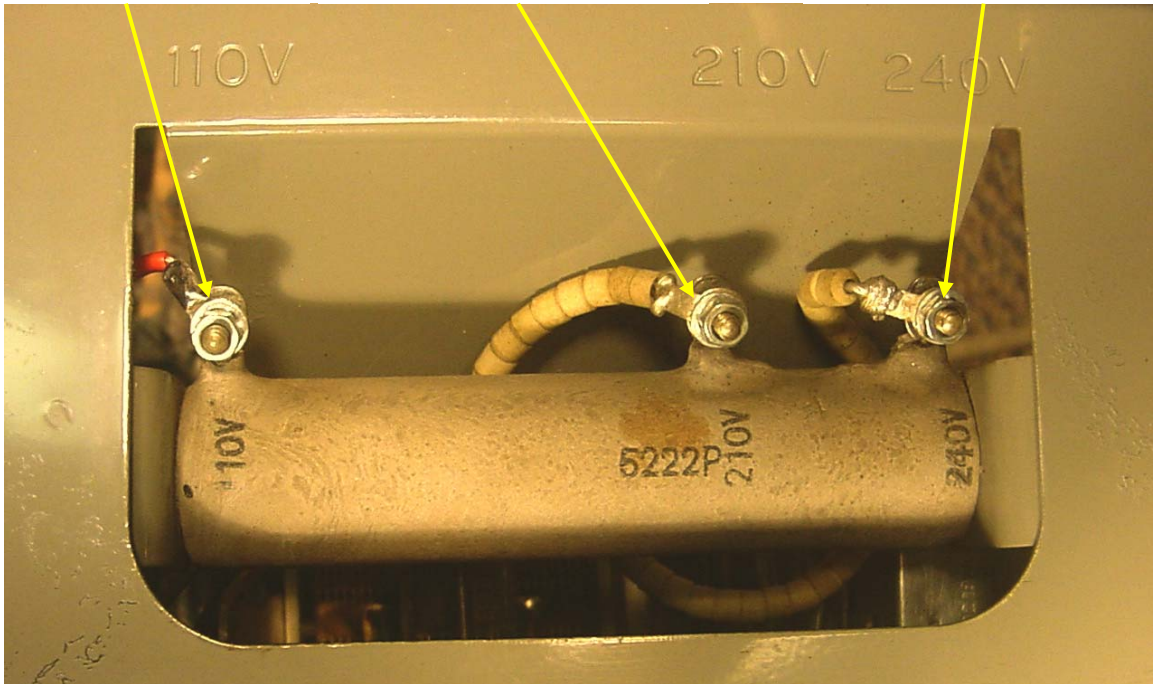


Above: the S.870 chassis rigged-up for testing. Note the 60v dial light bulbs poking out from either end of the dummy scale.

To dial lights (2 x 60v)

From power switch (120v)

To valve filament string (V5)

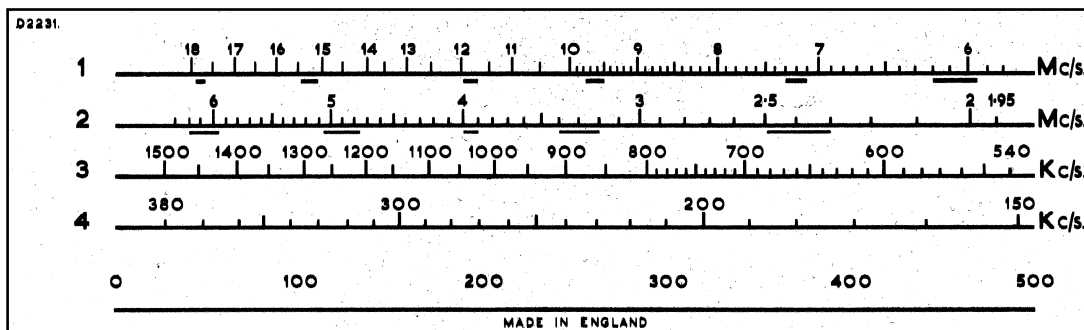


Above: the 40W mains dropper re-wired for alternate service in my S.870. Its only dissipating around 4W at one side and 1.25W at the other - judging by the colour of this resistor and surrounding paintwork I doubt that it has ever seen any service and that the set was used exclusively on a 110/120v supply – at least now it is seeing some service but its still an easy life for this guy...

my set was not in use as I was not working from a 210v or 240v supply. I surmised that the set would never be used on such a supply and so why not use the two sections of this for both the valve filament dropper (the 240v-220v section is 180ohm) and use the other (460ohm) section as dropper for the two dial lights to dim them a bit? I re-wired the power supply slightly to allow this and it worked ok – giving 47v across each bulb (and hence a more authentic glow and longer bulb life), and the filament string was now at 89v – a tad low but still within acceptable tolerance. Quite a neat solution, but it will need a warning on the set that it is wired such that it can operate only on a 120v supply. Around the time I completed this mod, Tor Marthinsen sent me a thermistor – so if I ever feel like changing it all back to its original configuration I can do (almost) – thanks Tor!

### Cosmetic Restoration

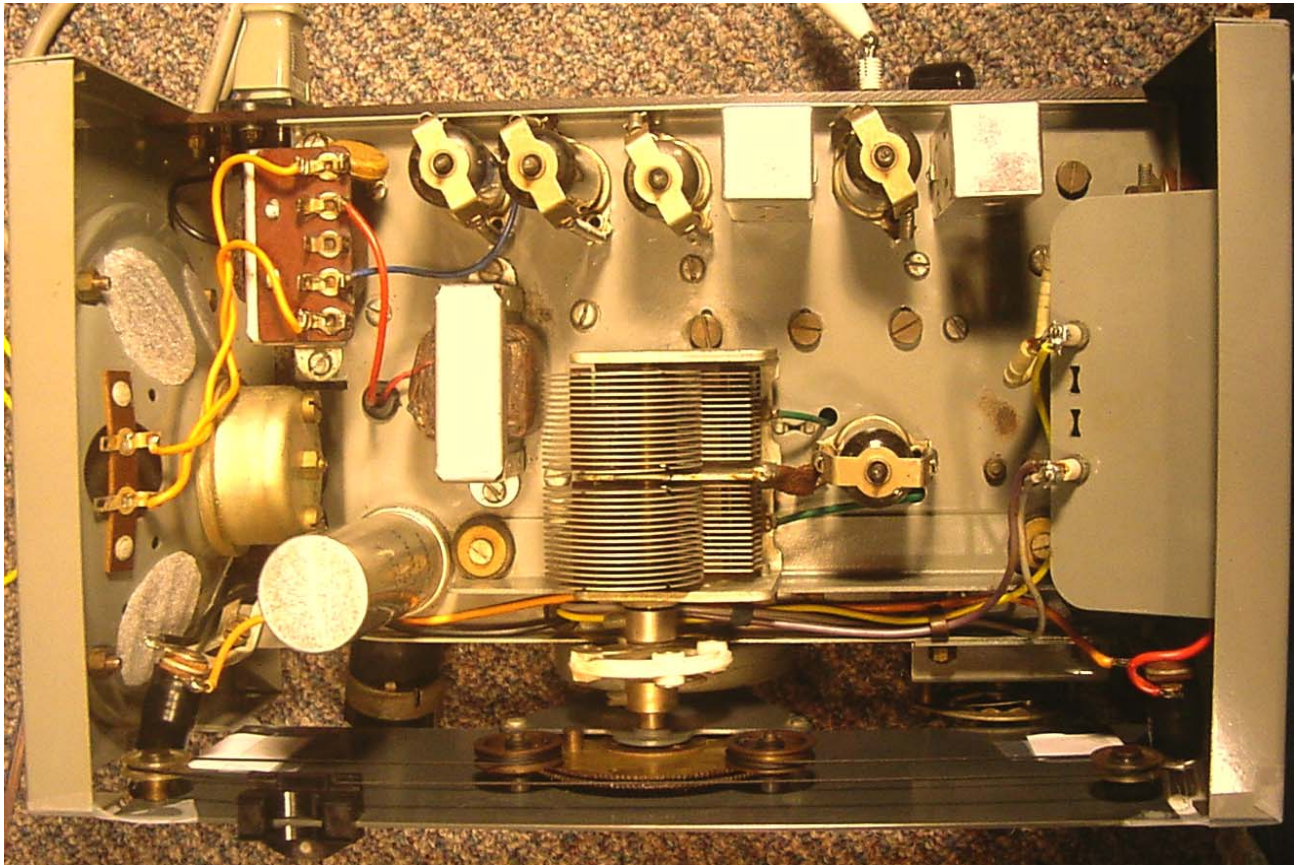
I sent the cabinet and front panel away for re-finishing and in the meantime temporarily





re-mounted the drive mechanism to the chassis along with a scan of the dial markings (base of previous page) so I could do a rough alignment check on the set. The knobs were given a thorough scrubbing and polished-up using Novus #3, 2 and 1.

The dial glass was very dirty – lots of nicotine and fine-grained dust adhering to it. Having been caught-out with my EC10 dial glass (wiping the markings away with just a dab of warm soapy water), I decided to exercise extreme caution with this one. I first cleaned the front of the glass with lens cleaner fluid and then cleaned the non-marked parts of the rear of the glass using Q-Tips and the fluid. Next, I painstakingly cleaned around each letter, number and line on the dial with the Q-Tips – took almost 2 hours to do a thorough job, but well-worth the effort I think.



Above: above-chassis view after clean-up and re-wiring efforts were completed. The tuning mechanism is temporarily fixed in place with 'magic tape' to allow a rough alignment check at this stage.

### **Closure – for now at least**

Because of the likely hiatus awaiting the front panel and cabinet re-finishing, I was going to split this article into two parts, thinking the second part would be available in late-summer of 2011, covering re-alignment, case and front panel re-finishing, re-assembly of the front panel and final checks/on-air testing. However, I became very busy in the

summer on other projects and the wait for the cabinet to be sand-blasted was rather longer than I expected. In the end, I did not submit Part 1 to Chris Pettitt, so turn to the next page instead!

73

©Gerry O'Hara, VE7GUH ([gerryohara@telus.net](mailto:gerryohara@telus.net)), Vancouver, Canada, June, 2011

What a difference an 'A' makes... or does it?

- An extra waveband! – that's the 'biggie'. This was by 'popular demand' for the set to include coverage of the 21.5MHz Broadcast Band;
- Slightly different power supply arrangement with an extra resistor across the dial lights and a 'proper' voltage selector located on the rear apron (instead of changing the taps on the 40W resistor manually); and
- Availability of British Racing Green as a colour choice.



Remember Eddy from 'The Lonely Receiver' Christmas tale from a few years back? – a British Racing Green S.870A and very proud of it!!



## Christmas and all That

The photo at the bottom of previous page must have been the result of some sort of premonition – summer turned to fall, fall to winter...Christmas and New Year came and went – photo, right, then a week in Las Vegas in January (and not one Eddystone in sight anywhere along the strip or in the pawn shops and fleamarkets). What a disappointment. However, I did pay a visit to the Atomic Testing Museum on East Flamingo Road there

(<http://www.atomictestingmuseum.org/index.asp>) – complete with displays of tactical



nuclear weapons (photo, left), and a simulated nuclear explosion where you sit on bleachers and experience a bright light (strobe), a mushroom cloud appearing on a screen, shaking and finally a blast of hot air. Perhaps they also peppered you with radioactive particles and ‘zapped you good’ with gamma, though they did not mention that in the brochure. I even found a radio in there, photo below – the caption (referring to the photo accompanying the radio) reads “*Wayne Violet’s mother and their Bakelite radio in their kitchen at Montevue, Idaho. The glow from a NTS atomic blast could be seen from their home*” – a good line in the estate agents blurb I guess... certainly beats the rather tame ‘peekaboo view of the sea’.



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## Colour Choice

As indicated on page 3, one of the best things about refinishing a cabinet is that you can either stick with the original colour or change it to whatever you would like. As you know, this little set had been finished originally in the 'MkII grey' livery – ok, but a little dull maybe? Or what about that nice green colour of the Christmas S.870A on the previous page – (similar to the little tactical nuclear shell)... maybe not. After re-reading the 'Cooke Report' (sidebar on page 1 of this article), I picked-up on how maroon was selected for production (text excerpt, right). My S.870A is finished in maroon with cream perforated panels (photo on page 1), very nice, but a bit 'popular' – so I thought maybe something else for a change would be



interesting. I got to thinking what if Harold Cox's favourite colour had been different? – why not re-finish it in a prototype colour that was never produced? Not too garish though: yellow? – not really, unless I stuck a 'CAT' sticker on it, pea green? – don't think so, red? – maybe (I like red), but wait a minute, my wife's favourite colour is blue – and blue is one of those colours listed by Bill. No brainer then I guess.... decision made – blue it was to be!

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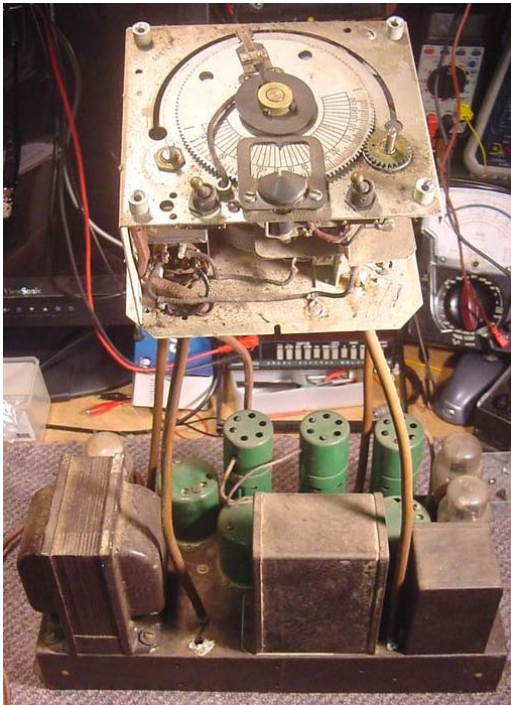
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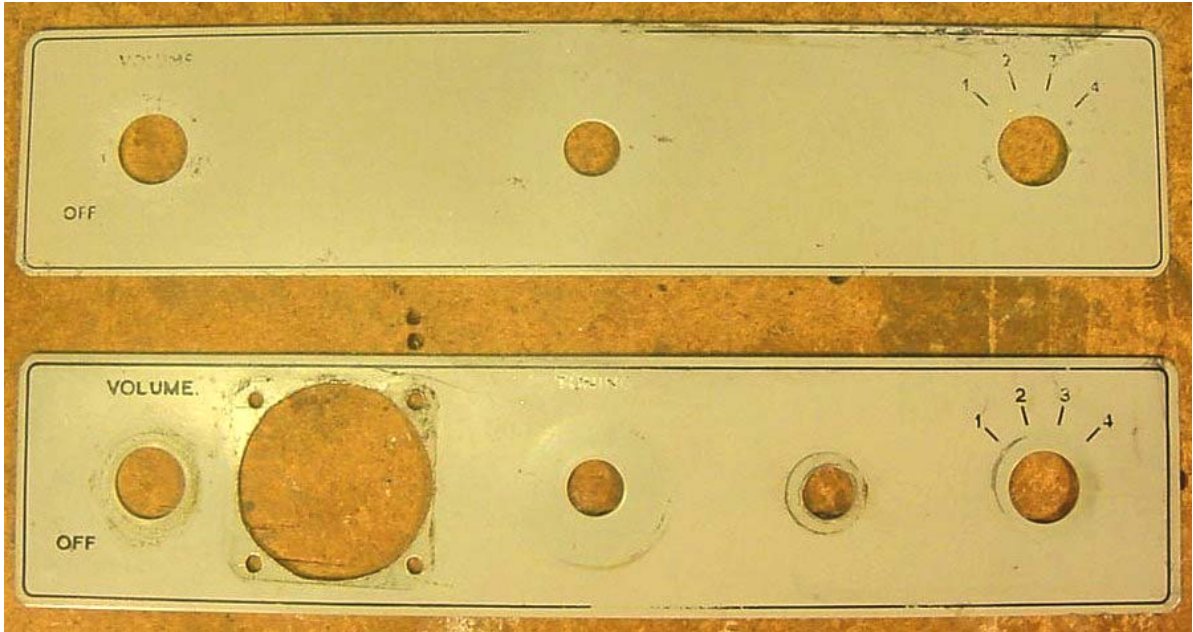


Shortly after my return home, a note arrived to say the cabinet was finished – the main delay had been due to problems with the sandblasting machine. Patience is, of course, a virtue...

## Fingerplate Woes

With the re-finished cabinet back in the workshop, I pulled the chassis out from under a number of projects that had been piled-up on top of it over the preceding six months, including chassis from a National NC-183 and Stromberg-Carlson Model 56 (photo, left – is that a weird chassis or what? – the tuner is in the sub-chassis on the copper pipe 'spider legs' and the IF/AF/power supply are on the main chassis beneath), bits off a Hallicrafters SX-28A and a pile of schematics – good job I put all the nuts, bolts and other parts in a sealed box





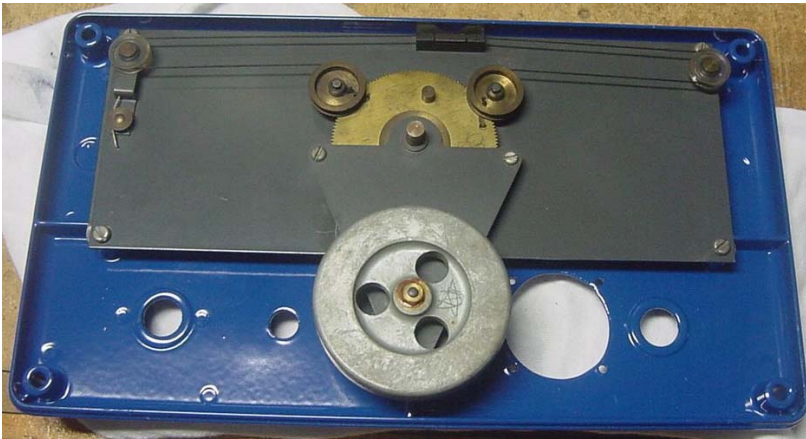
labeled 'S.870'... Then I remembered the fingerplate – the original had the large meter hole cut in it plus the smaller hole that had been drilled for a headphones jack (lower fingerplate in photo, above). I had contacted Ian Nutt about this back in the spring of 2011– he had one in stock (used), but unfortunately it was only in 'fair' condition and in light grey. I asked Ian to send it along anyway as it had to be better than the original – no unwanted holes at least. On arrival it was evident that some of the lettering was worn away quite badly (upper fingerplate in photo, above), so I decided to re-finish the fingerplate also. This had the benefit that I could do so in a colour scheme sympathetic to the blue powder coat of the cabinet. The result can be seen later in this article and the artwork can be downloaded from the EUG website if you are in need of sprucing your set up. George Gorczynski prepared the artwork in CorelDraw and printed it on semi-gloss paper – I attached it using a glue stick over the (replacement) fingerplate. A version of the artwork for the S.870A (5 bands) was also produced and both are available for download from the EUG website (and see page 20 of this article).

### Re-assembly

Putting the S.870 back together was straightforward. The first step was to place the dial glass into the recess on the front panel (photo, right), fit the two side strips in place either side of it and then screw the dial drive mechanism assembly in place



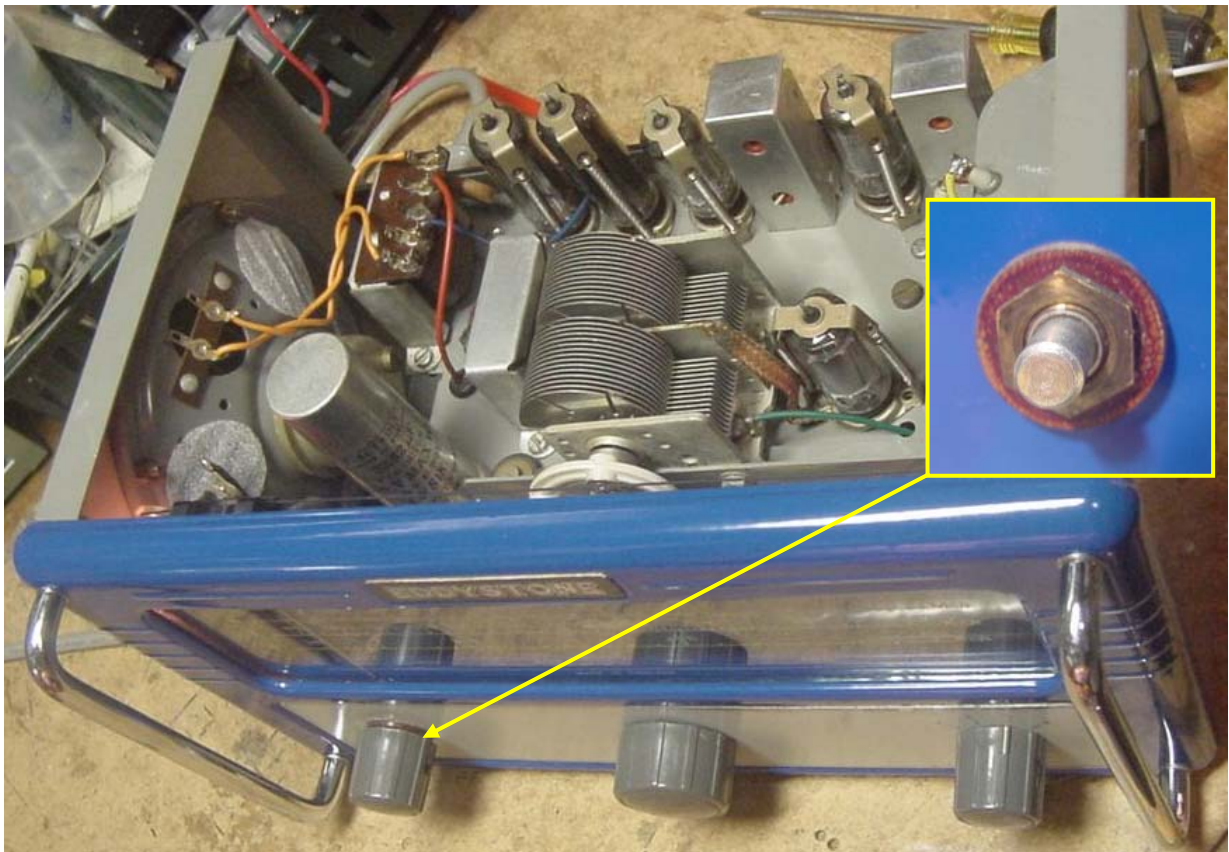
with the four self-tap screws and the 4BA tapered-head screw located at the bottom of the dial drive mechanism (the nut for this can be a little awkward to fit as it is located behind the flywheel) – photo, below.



Next the front panel was offered-up to the front of the chassis and secured with the four 2BA screws that hold the chrome-plated handles in place, not forgetting the plain washers on the front side and the spring washers on the rear.

The volume control was then installed, making sure that the insulation washers were in place (plain one at the rear of the panel, rebated one in front – inset on the photo below).

I was a little concerned that the powder coated case would not fit over the rebate on the front panel casting (the powder coat is somewhat thicker than the original enamel paint finish). However, once in place, the cabinet screws brought it into alignment and it fitted nice and snug (and could still be removed easily – phew!).

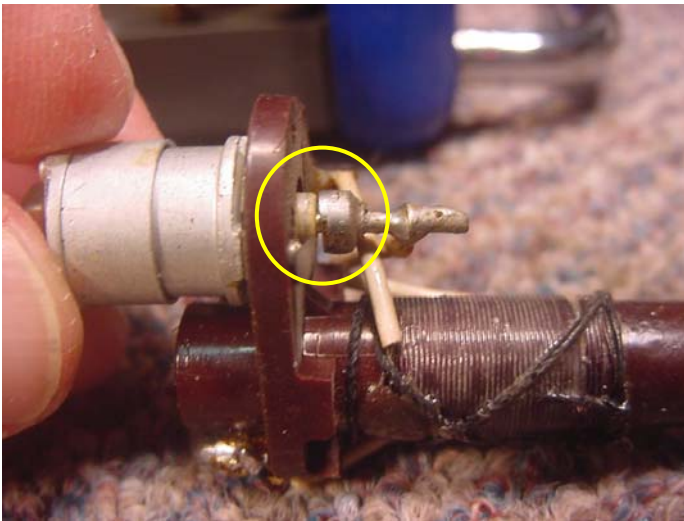
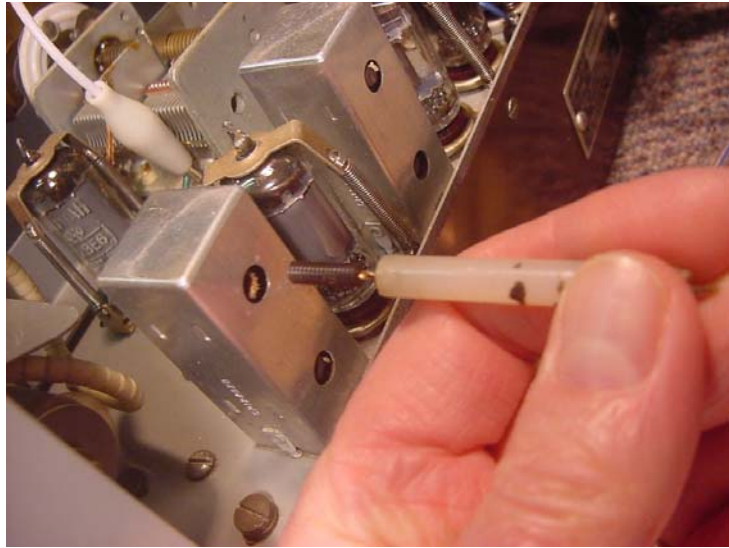




## Re-alignment and On Air Tests

The alignment procedure for the S.870 is very straightforward and is described well in the manual, so I will not repeat it here. Unfortunately, it did not go smoothly...

The IF was quite a way out – it was peaking around 425kHz, but no problem adjusting to the correct frequency (465kHz). The slugs had been fitted with rubber threads to mitigate against vibration – as usual these had perished and were removed, being replaced with a dab of Kilopoise high-viscosity grease. So far so good (photo, above).

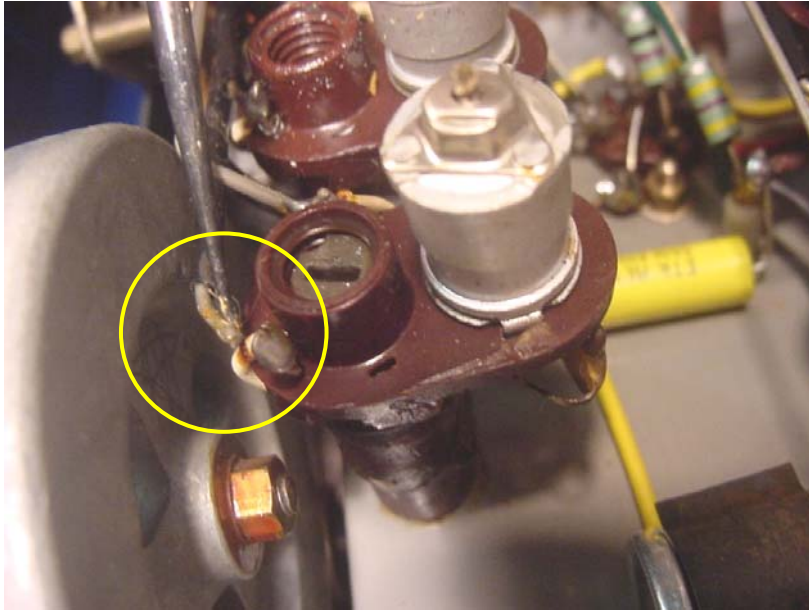


there. Moving to Band 2, I noticed that the concentric (Philips beehive) trimmer on the Local Oscillator was intermittent in operation – the cause was a loose threaded spigot (circled in photo, above). The trimmer was removed and replaced with a new part (upper unit in photo, right). I always knew those Philips beehives would come in useful one day – I actually recall buying them at the Granby Halls in Leicester in 1973(!) along with a 'halo' and a mag-mount 5/8 whip for 2 metres (at this rate I will be about 96 before I use another one). To do this, three wires

Not such good luck with the RF section though. First of all, the slugs had been liberally doused with silicone grease, but the rubber threads had been left in, causing some to jam – luckily these were eventually coaxed-out, the remnants of the perished rubber threads removed, excess silicone grease cleaned off and replaced with a dab of the Kilopoise grease. That done, I started the RF re-alignment. I started with Band 1 – no problems



needed to be unsoldered from the coil former and the former removed from the set along with the trimmer. With the NOS replacement fitted and the coil re-fitted into the chassis, Band 2 aligned ok. No problems with Band 3 (Medium Wave or Broadcast Band, depending on which side of the pond you are from), but there was nothing at all on Band 4 (Long Wave). I checked the operation of the Local Oscillator on another receiver and confirmed that it was not oscillating. Nothing much to go wrong – either a faulty converter valve (unlikely as it was working ok at higher frequencies), an open-circuit coil



(L5), shorted trimmer (C18), faulty bandchange switch, dry joint or a failed capacitor (C17). Examining the connection to the local oscillator coil soon revealed the culprit – the wire connecting the coil to the bandswitch was disconnected (circled in photo, left). This looked like it could have been a result of a dry joint from new, eventually

disconnecting from the solder tag on the coil form. I cleaned-up the wire and re-made the joint. Band 4 was now working ok.

I finished the RF re-alignment per the table in the manual, sealing the Philips trimmers with a small dab of nail polish (photo, right), and then I finally tweaked the IF trap – job done.

Now, to find the cause of that distorted audio...

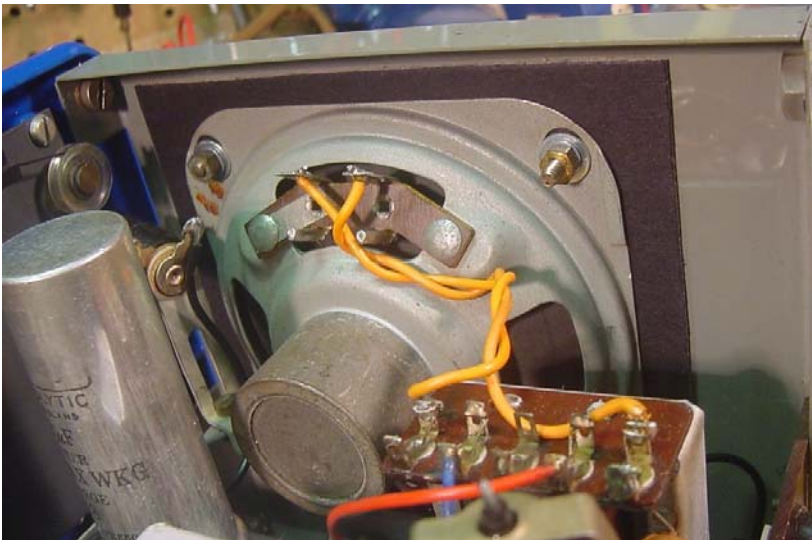
### Distorted Audio

First I re-checked the voltages, especially around the output and 1<sup>st</sup> audio valves – these seemed ok. Next, I tried a new 19AQ5 valve, with no improvement. I then checked the output with a sine wave injected at the volume control using a 'scope – no distortion was evident on the 'scope trace. Finally, suspicion fell on the speaker. Sure enough, when I disconnected it and coupled another speaker to the output transformer the audio was clean and undistorted. I removed the speaker from the chassis and gently pushed the cone in and out – I could feel the voicecoil rubbing against the magnet.. Looking at the rear of the speaker, it is possible to remove the magnet on this ELAC unit by removing two bolts and a nut that secures the centre of the spider.





This done, very carefully, I could see that that all three arms of the spider were broken (photo, right) – no wonder the voicecoil was not centered! What to do? – try to repair this speaker – not an easy task, or find one that would fit? I removed the dome that covers the front of the spider using a scalpel and soon decided that it would be a very difficult and time-consuming job to repair (or replace) the spider and then centralize the voicecoil (and I have repaired several speakers before), so instead I decided to find a replacement speaker.



A trip to the SPARC museum the next day identified a couple of likely replacement speakers – both were 4 ohm units, tested ok and fit well, even having the same fixing hole centres. I selected the speaker with the larger magnet, made a cardboard gasket and fitted it in place of the original (photo, left) – sounds fine.

Once completed, I tried some side-by-side comparisons with my S.870A. The ‘feel’ of the tuning, sensitivity and selectivity were (subjectively), as expected, very similar, as was the audio quality. Of course, the S.870 only receives signals up to just over 18MHz, whereas the S.870A to 24MHz, though, in practice, this segment of the band is not a great loss to many, especially given the very cramped scale on Range 1 of the S.870A.

## Closure

This must rank as one of my longest-ever projects<sup>3</sup>, though the actual time spent working on the receiver was not that great – just a long hiatus waiting for the cabinet re-finish that

<sup>3</sup> My Philco 16B ranks as my longest-ever restoration project (biggest ‘tombstone’ radio ever), followed by my RACAL RA-117. Though maybe the S.870 is not really a ‘restoration’ at all as it was not finished to its original colour...

was out of my control – and there was no urgency anyway (lots of other projects waiting my attention!). Having finally completed the set, I am pleased with the overall result, especially choosing a non-standard colour. Of course, my wife thinks it is a real cutie in her favourite colour... It currently resides on a shelf in a spare bedroom along with an EB35 and some small domestic valve radios – including a nice blue Crosley ‘dashboard radio – all looking and sounding good!

73

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PS – I finally found some blue spray paint for the knobs – see photos on pages 24 and 25



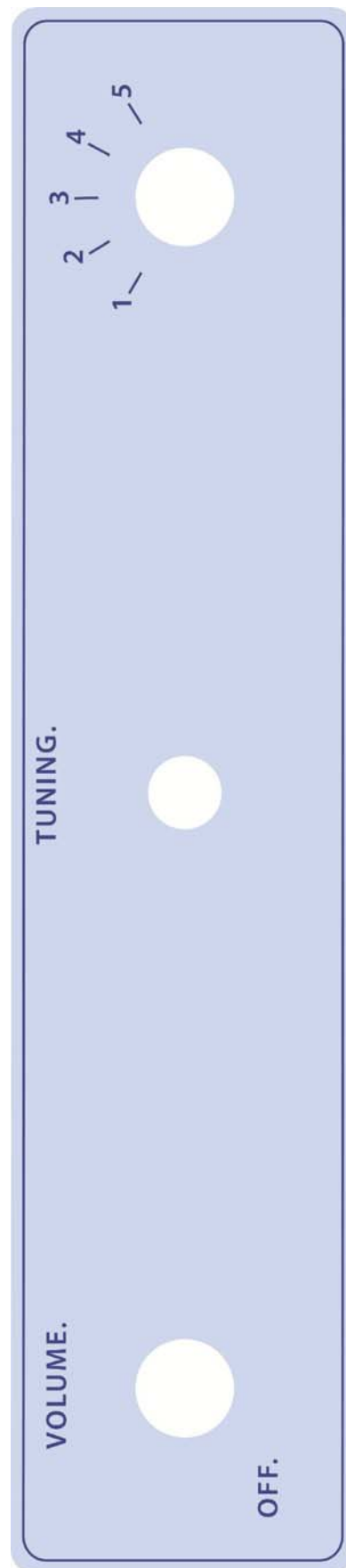
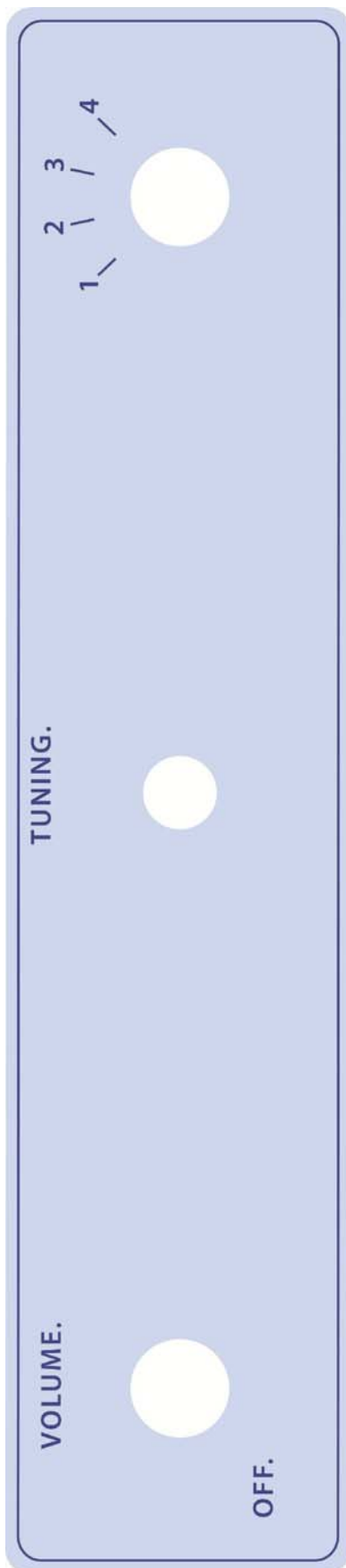
Above: replacement speaker fitted into the S.870





Above: all aglow and working well – apart from the lousy loudspeaker, subsequently changed-out. Below left: the UK Royalty label re-affixed to the bottom of the cabinet – details matter even in less-than-original restorative work. This was originally riveted in place but I found some tiny self-tap screws in the junk box that did the job nicely. Below right: IEC power connector





Fingerplate artwork for the S.870 and S.870A (downloadable from the EUG website)





Above: S.870 with artwork fitted to the fingerplate – this was finished in a light blue with lettering in darker blue, printed on semi-gloss paper













Above: Well... I had to paint the knobs too – actually these ones are some that were removed from an EC10 due to them having developed several cracks – these were filled with epoxy and spray-painted with lacquer and then clear coat – good match for the powder coat eh?





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